



**BROOKHAVEN NATIONAL LABORATORY  
81 CORNELL AVE., UPTON, NEW YORK, UNITED STATES,  
11973-5000**

**69528**

**Audit Type**  
SURVEILLANCE

16-JUN-2008

**Lead Auditor**  
KENNETH CLAYMAN

**Registration**  
OHSAS 18001:2007

**Recommendation**  
Surveillance complete with changes to certificate



## Executive Summary

OHSAS 18001:2007	<p>Positive and/or Noteworthy Practices Identified during this Audit Included:</p> <ul style="list-style-type: none"> <li>- Management Reviews for both EMS and OSH MS - Good information developed and provided to Lab Management. Clearly stated recommendations for improvements - great demonstration of commitment to continual improvement.</li> <li>- JRA Pamphlets developed in the Refrigeration/Air Condition Maintenance group (F&amp;OD, Plant Engineering)</li> <li>- Management of machine shop in Building 815 - EENS</li> <li>- The F&amp;OD Safety Management Plan - represents a good start to enhancement of communications and awareness of safety as an appropriate behaviour in all activities - too new to determine effectiveness at this time.</li> <li>- The visible evidence of consideration of EHS issues in several steps of the projects planning and implementation process as managed by the Project Coordination office.</li> <li>- The fuel receiving facility near the Chilled Water Plant - great design that has incorporated many engineered controls for avoidance of fuel/oil spills or for spills impacting the environment, as well as ensuring awareness among the fuel/oil truck drivers of unloading and spill prevention requirements.</li> </ul> <p>BNL is recommended for continuing registration to ISO 14001:2004 and for continued registration and upgrade/transition to OHSAS 18001:2007.</p>
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## Opportunities

OHSAS 18001:2007	See OFI section
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## Corrective Actions

<b>Standard</b>	OHSAS 18001:2007
<b>Auditor</b>	KENNETH CLAYMAN
<b>CAR Type</b>	Minor
<b>Standard Clause</b>	4.3.1 Planning for Hazard Identification, Risk Assessment and Risk Control
<b>Location of finding.</b>	F&O - Review of FRAs/JRAs
<b>Discussed with:</b>	ESHQT Manager and others in Directorate
<b>Statement of Requirement:</b>	Subject Area: Facility, Area and Job Risk Assessments (2/26/08) requires that written Remedial Action Programs are developed for hazards that have risk factors considered as "Substantial" (risk score of 61 to 80).
<b>Statement of nonconformity:</b>	No written remedial action program has been developed for hazards in the Emergency Services group that are ranked as "substantial" risk.
<b>Objective evidence:</b>	JRA-EM-STREETVALVE-02 (3/13/07) includes a risk ranking of 72 for the Vehicle Traffic hazard.



Opportunities for Improvements	
Location of OFI	Review of Objectives/Targets/Performance Measures
Discussed With	Industrial Hygiene Manager; Director-Health & Safety Services
Description	<p>While reviewing the performance data and information for FY08 objectives &amp; targets (O&amp;Ts), it was indicated that there is no formal reporting of the Lab-Level performance beyond the annual Management Review meetings. In addition, this information is reported only to the top management group for the Lab. An OFI exists with consideration of more frequent, formal tracking and reporting of the O&amp;T performance information and for communicating this information to all Lab personnel as part of the efforts to encourage and support participation and involvement in the OSH MS.</p>

<b>Audits, Compliance Evaluations, Corrective/Preventive Action</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> SA: Integrated Assessments (12/21/04); IH50700 Industrial Hygiene Requirements Management (Rev. 4, 1/12/07); SA: Environmental Assessments and ESH Management Review (5/16/07); SA: Event/Issues Management (9/28/06); SA: Nonconformances, Identifying and Reporting (12/15/03)</p> <p><b>Process objective(s):</b> Ensure that the Management Systems are reviewed regularly to identify opportunities for improvements and ensure those improvements are implemented. Ensure that the organization maintains compliance with identified legal and other requirements, and takes appropriate actions where noncompliances are identified. Ensure that top management keep up with the management systems and direct actions in conformance with the commitments to continual improvements.</p> <p><b>Describe whether the process is effective or not:</b> The use of Internal Audits, Compliance Evaluations and Corrective/Preventive Actions as applied to EHS management are effectively implemented as indicated by the audit evidence.</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> IH50700 Attachment 9.3 Periodic Regulatory Driver Survey for 2008 2Q (3/31/08); FY08 OHSAS Internal Audit Plan (1/31/08); OHSAS 18001 Internal Audit Topics Schedule (11/28/07) - 3 year IA schedule; OHSMS for BNL Organizations Final Report (5/15/08); 2008 EMS Final Audit Plan (1/16/08); EMS Internal Audit Checklist records (Feb. 2008 - Audit Team); ATS #3964 FY07 Multi-Topic Environmental Assessment (10/07) Process for identification of legal and other requirements applicable to OSH Management is identical to that used on the Environmental side, but it is completed by the IH Director and Safety Engineering Director. Maintain access to the relevant requirements through hard copies and electronic services. The Driver Survey records show the relevance of the requirements to categories of hazard/risk issues. See section notes for Compliance Evaluation process conformance. Guidance Cards established that act as checklists relative to particular legal/other requirements topics. OSH Internal Audits determined based on last years weaknesses and importance of OSH areas. Guidance Cards have been established to cover OHSAS requirement topic areas as well. The auditors were the S&amp;H representatives to the line organization (they work for SHSD, but are matrixed to the line group. Records demonstrate that a good and thorough review of the relevant scoped areas was completed and that many findings were generated - most were of a "local" nature and are recorded/tracked on Family ATS' or other similar items. EMS Internal Audits - one-third of the ISO 14001 requirements covered annually (minimum). Input and feedback from management representatives from the Directorates for additional topics. EMS Coordinator and Manager EHSD review the results of previous audits for additional input into the audit planning activities. This information is provided to their second party auditor for consolidation into a full internal EMS audit plan. Audit held in February 2008 - Rev'd: ISO 14001:2004 EMS Audit (3/17/08) Final Report Rev'd: Audit findings included in the Assessment Tracking System (ATS) - #4153 - Inclusive of all Minor NCs and Observations from EMS Internal Audit. The OHSAS internal audit findings from</p>
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<b>Process</b>	
<b>Processes</b>	<b>Observations</b>
	<p>the institutional level will also be recorded and tracked in ATS as well (waiting on hiring of new person to complete this task - this is a function of the ATS structure not a resource issue). Multi-Topic Compliance Assessment will generate institutional ATS recordings. Interviewees: IH Manager, Manager-SHSD, Manager-EHSD, Supervisor-Field Services Section</p>
<b>Communications - Continued</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> See previous information in "Part 1"</p> <p><b>Process objective(s):</b> See previous information in "Part 1"</p> <p><b>Describe whether the process is effective or not:</b> See previous information in "Part 1"</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> See notes below: Internal Communications tools - Monday Morning Memos (Lab Director-generated); ESSH Monthly Summaries (traffic safety, injuries reporting, information about other issues of H&amp;S concern); the Bulletin (weekly employee newsletter); EHS Concern Hotline - reporting for ESH issues &amp; suggestions (about 4 to 6 items per quarter, but they are changing some of the focus to gain more involvement - only reviewed by management to preserve anonymity and personal information concerns). S3 Awards - used to recognize personnel at BNL who do the right kinds of things relative to H&amp;S (outstanding acts/ actions). It is used to encourage greater involvement and participation and promote continual improvement. Winners are determined by the S2 Council, which is a cross-functional team that is represented by someone from all Directorates/Departments and from the Union at the Lab. This is not the same group as the Lab Director's Safety Committee (which has greater worker/union involvement; reviewed DSC membership list). The DSC is established in part for the members to gain feedback from their respective groups relative to ESH issues - then provide that feedback to the Director. The group is focused on implementation of Lab policies as created by the Lab Safety Committed and Safety Professionals. They take the "pulse" of the Lab for ESH and ensure that resources are allocated appropriately and practically.</p>
<b>EENS Directorate</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> Grants and other awards that enable the researchers and guests to carry out the Energy, Environment and National Security research work. Initiatives in process this year - Experimental Safety Reviews (ESRs) improvements, Nano Self-Assessments, Hazard Information Placards, ESH Newsletter (monthly), Summer Student Orientations improvements.</p> <p><b>Process objective(s):</b> Conduct of research projects within EENS in an environmentally sound manner, and in protection of worker and guest health and safety.</p> <p><b>Describe whether the process is effective or not:</b> The application of EHS requirements and policies was found to be effectively implemented in the EENS Directorate.</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> Three Departments plus the Research Operations Office make up EENS. Work Planning and Control SA applies - most of the work in the Directorate falls under</p>

	<p>the experimental review part of WP&amp;C.</p> <p>General JRAs done for office, other administrative and support work. Rev'd: EENS Active ESRs-June 2008 - shows list of active research work associated with significant aspects. All ESRs reviewed by ECR, OSH Rep and Rad Control Rep. Reviews involve walk-down of work areas and/or interviews w/researchers to learn of anticipated ESH issues. All ESRs reviewed at least annually, and when changes to projects occur. Rev'd: Lists of FRAs and JRAs as of 6/18/08, List of ESRs, JRAs (6/18/08). Rev'd JRAs revised in 2008 - Working w/Lasers, Manual Material Handling, Work in Noise Areas..., Operating Vehicles On- &amp; Off-Site, Gen'l Exp. Facilities, Bldg. 179A, Bldgs. 197 C&amp;D, Bldg. 487 Rev'd: Status of EENS ESH FY08 Objectives and Targets (6/16/08) - Dep. Manager explained how they decided on these O/Ts - includes required criteria from Standards. Systems Management Representatives asked for input on development of overall O/Ts this year, a change from previous years. Rev'd: Records, other evidence of completion or progress on achieving the stated O/Ts - ESH Newsletters w/energy reduction suggestions, completed Self-Assessment against the Nanomaterials Interim Procedure (Family ATS #4039, completed in Jan., March), Using Shuttle Service to reduce GHG emissions, Reduced Chemical Inventory/legacy materials, Human Factors consultant involvement in incident investigations and ESR reviews, Ensuring ESRs in Lab spaces are current, Get people involved in the HPI activities, Create electronic HIP cards; conduct meeting with Bldg managers to review initiatives and improvements, prepare/present Web Requisition training session for EENS Admin. Staff. Rev'd: Records for STOP evaluations completed by the Interim Director, Business Ops Manager, and Dept. Chair-Nat'l Security - these focus on safety behaviors of the employees through random reviews. Rev'd: Records of Tier 1 Inspections - Q3 Tier 1 Schedule (6/12/08); reports for Bldg 815C (4/24/08), Bldg. 815E (2/21/08), Bldg. 830 (4/3/08 and 1/10/08) sent to Bldg. Mgrs. Data are analysed for trends and presented during management reviews (rev'd). Trends may result in more rigorous actions through a committee review, causal evaluation and development of action plans (recorded/tracked in Family or Lab ATS). Compliance Evaluation - through Multi-Topic Assessment, done by IH Group from SHSD. Used Guidance Card approach for the OSH side, most environmental compliance assessments are scheduled for 4th quarter. Rev'd OSH Self Assessment records. No negative findings from the assessment, a couple of OFIs. Rev'd: EENS 2007 EHS Management Review - Presentation (11/15/07) and Minutes (1/31/08) - covers all required inputs, outputs. Sent to the EMR and OSH MR for roll-up into the Lab-level MR. EENS employees are involved in working groups and meetings, represented on Subject Area review/revision groups, consulted for development of such activities as the emergency response planning, ask for input on P2 and S2 programs. Lessons Learned information is sent to all EENS employees/guests - reviewed examples of all of these items. Employees are also involved in work planning, review of JRAs and FRAs, and work permit establishment. Interviews/Observations of Projects/Labs and the B815 Machine Shop - Demonstration of good understanding and application of EHS requirements, policies and principles. Mngmnt of env aspects, OSH hazards/risks in good order and conformant w/reqts. Machine shop in B815 was of particular note for excellent housekeeping and controls over personnel approved to use facility and equipment. Interviewees: Deputy Manager-EENS, Interim Manager-EENS, ECR-EENS, OSH Representative-EENS, Chemist (EE Division), Asst. Materials Scientist (NE Division), Environmental Research Engineer (EE Div.), Technical Research Associate (NN Division), Resource Coordinator/Bldg Mgr (B815), Group Leader-Tracer Technology</p>
<b>F&amp;O Directorate -</b>	<b>Identify process inputs and describe their interactions with the process:</b>

Cont 2	<p>See first part of FOD</p> <p><b>Process objective(s):</b></p> <p>See first part of FOD</p> <p><b>Describe whether the process is effective or not:</b></p> <p>See first part of FOD</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b></p> <p>PM Coordinator - Rev'd Refrigerant Management Database and associated records. Coord. explained process for recording, tracking items (work orders, database). Runs reports for compliance reqts.</p> <p>Heavy Eqpt. Maint. Operations (HEMO) - Hydraulic oils, some bio-based materials. All equipment is fit with spill kits, including in the repair shop. Described a recent incident involving the Street Sweeper (reviewed ORPS report from 6/11/08); observed Sweeper in shop getting repaired. Routine inspections include hoses, but the hose that failed in the incident is in a location hidden by other elements of the equipment. HEMO JRAs - Tire Change/Repair, Preventive Maint./Corrective Maint., Snow Removal. Sample of HEMO/Rigging Procedures - O&amp;M-SITE-003 Transfer Station &amp; Borrow Pit Areas (4/08); O&amp;M-HEMO-007 Operating Instructions for Site Maintenance Fuel Truck (8/05); O&amp;M-ESH-705 Powered Industrial Forklift Safety (9/07). HEMO Shop features - Permitted welding area, bulk storage tanks (nearby); work permits prepared for many jobs (not all); spills are isolated and picked up (often by Sweeper) and get the ECR involved. CMS Management - book/lists reviewed at least annually - many chemicals used in the shop. Observed - Street Sweeper under repair-LOTO in good use; waste drums-oily rags, aerosol cans; parts washer-distills solvents in-situ, low flash materials; bulk fluids rack; used oil filters in drum; signs-clearnce area for electrical panels; improved lighting-hi intensity lamps; welding area (permitted); rigging equipment-for incidentally work, annual inspection (stickers on slings). HEMO Mechanic really knew his stuff relative to ESH - good job! Rigging Shop - Rev'd Rigging Inspection and Calibration Records from Late 2007 - Early 2008; includes information for scales, dynamometers, shackles and slings. Rev'd Rigging Plan for Bldg 811 D-Tanks 1 &amp; 2 Removal and Disposal (9/21/07, Rev. 1) and CLEF for HEPA Filtration Assembly (10/6/06) Refrigeration/Air Conditioning Maint - Rev'd information and documents pertaining to environmental aspects, FRAs/JRAs. Superintendent described work planning activities/process - conforms to subject area requirements. All R/AC Staff have EPA Universal certification for refrigerant handling. Supervisors complete job walk-thrus to assure conformance to work plan and other relevant ESH requirements. Group developed a JRA Pamphlet (Rev'd - 8/07 publish date) that is provided to all staff for use as reference, planning and control tool - very nice, noteworthy practice! These are also used as basis for Toolbox Talks. Rev'd: Refrigerant Management Plan (4/4/08) and Refrigerant Usage Service Form (Rev. 0, 12/7/2000). The latter is used to record refrigerant loss and additions from/to equipment during servicing activities. Observed: Refrigerant storage areas and area used for draining equipment. Project Coordination Office - Manager of Project Coordination - Plan, coordinate larger projects from cradel to grave. Several steps in process where EHS issues are evaluated and incorporated into plans and/or designs in order to eliminate, minimize and/or control them either as they may occur during the construction activities or as it affects the buildings themselves (designing engineered controls into the buildings - new or renovated). A very early step includes completion of the 500A Form - which is specifically focused on review of potential ESH issues relevant to the proposed project (rev'd examples). Throughout projects other documents/plans created - Risk Management</p>
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	<p>Plan, Hazard Analysis, Risk Registry (for projects &gt;\$5 million, similar to a FMEA). LEED requirements applicable to new buildings construction - currently mandated (DOE) to achieve silver level, may be raised to gold in future. Heavy involvement of ESH representatives in reviews. His group also is involved in the construction phases doing reviews/inspections, and then completion of a BORE or ORE at the end of the projects, prior to allowing occupancy of the buildings. Conducts monthly meetings with PC staff to review projects - lessons learned, hi-lite of particular EHS issues.</p>
<b>F&amp;O Directorate - Continued</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> Operational Divisions: Operations &amp; Environment - Central Steam Plant, Electric Distribution Operations; Site Maintenance &amp; Services - Heavy Equipment Maintenance, Rigging Services; Building &amp; Mechanical Maintenance &amp; Services - Refrigeration &amp; Air Conditioning; Project Coordination</p> <p><b>Process objective(s):</b> See previous notes section for FOD</p> <p><b>Describe whether the process is effective or not:</b> See previous notes section for FOD</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> Central Steam Plant (CSP) - OBSERVED - Bulk fuel storage tanks: Enclosure berms recently reconstructed to meet State and Local requirements for secondary containment; tanks around 25 years old; inspected/tested on a 5- or 7-year frequency, cathodic protection tested annually. Spill response trailer - with equipment - many additions made recently due to Federal inspection in accordance with Clean Water Act requirements (Facility Response Plans in particular). Maintain 1000 ft. of boom, 2 surface oil skimmers, and large supply of absorbents among other items. Fuel receiving facility - fully contained and covered; 7000 gallon retention capacity up to the curb, closed sump/drain in middle of area. CSP staff man the area any time a drop is in process. Engineered controls designed into the receiving system to help avoid pressure build-up and possible damages (relief valves). Orientation/Driver Procedure - O&amp;M-OSF-009 Receiving Fuel Oil at the Central Steam Facility (3/12/06) - all drivers are required to review and sign acknowledgement of their understanding of the procedure. Interviewed CSP Supervisor - Discharge Authorizations for draining water from tank berms (rev'd); Daily Tank Storage Inspections (rev'd). Described operations and ESH issues such as use of fuels, slip-trip-fall hazards, bee stings, electrical hazards, air emissions and monitoring. Rev'd: Quarterly Site-Wide Air Emissions Report (April 2008) - sent to NYSDEC per permit requirements. Monthly QA/QC activities carried out by consultant (rev'd records - gas tank inspections, etc.). Work planning used to evaluate hazards/risks/environmental issues for job-specific activities. No entry level employees work in this area - all must have at least 10 years relevant experience and appropriate accreditation/licensing. Carry out Tool Box Meetings every other week - topics based on O&amp;M procedures or other relevant EHS topics. Rev'd: Plant Engineering Confined Space Certificates (11/04, 12/07). Toured plant to observe EHS controls in action. Electrical Distribution - General Supervisor for ED - Maintain electrical system on-site as it is delivered from the vendor (LIPA). Deal with around 2000 maintenance work orders monthly (?). The electricians must be very experienced and skilled and able to do all different types of work in the high energy/high voltage environment. Described work planning process (rev'd example of work plan in process for deenergizing substations 1P and 2P). Work instructions prepared for</p>



	<p>each job and must be reviewed and agreed to by all workers involved as well as Plant Engineering Engineer - includes identification of hazards, risks and relevant controls (PPE, engineered and administrative). Hot Gloves, Hot Sticks and Trucks are inspected/tested regularly - reviewed records for trucks and hot sticks (observed hot stick with current inspection sticker applied). Per BNL requirements no work in &gt;Category 4 conditions can occur - need to develop alternatives for those situations. Oil is their biggest environmental consideration. Carry out semi-annual transformer inspections throughout the Lab (monthly for RHIC area). Rigging Group - Transport, lift, move items throughout the Lab, support to F&amp;O/Maintenance activities. Morning meetings held daily to review the jobs of the day, particularly the ESH issues involved with the planned work. Critical Lifts require serious planning prior to the event to ensure all operational, safety issues are taken into account and addressed - plans are documented (reviewed examples). All Riggers &amp; HEMO personnel go through 3-day training (JJ Keller)'; staff must be CDL drivers. Master Rigger curriculum is offered as an option to the Riggers - heavy emphasis on safe practices/planning and safety in rigging activities. All work, routine or otherwise, is completed by crews of at least 3 Riggers (Chief and 2 others). Supervisor checks up on routine jobs to ensure safe practices are used at all times. Rev'd: JRAs for Riggers - Overhead Crane Operations, Misc. Rigging, Forklift Truck Use, Load Securement, Tool Crib Operations. Environmental Aspects - oils, fuels mostly</p>
<b>Facilities &amp; Operations Directorate</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> Facilities &amp; Operations Directorate (FOD) Environment, Safety &amp; Health Program Description (R.3, 4/23/08); FOD Self-Assessment &amp; Business Plan /Program Description (R.3, 5/7/07); Process Assessments - Completed by FOD Divisions - include evaluation for environmental aspects/impacts (various dates - many recently reviewed/revised); F&amp;O's Pollution Prevention (P2) Projects; FOD ES&amp;H Targets &amp; Objectives for FY 2008 (5/31/08)</p> <p><b>Process objective(s):</b> In fulfillment of the FOD mission, maintaining the environmental, health &amp; safety integrity of the Lab facilities, ensuring appropriate planning for and implementation of emergency response procedures and completing these tasks that places the most effective controls on recognized environmental aspects and OSH hazards and risks.</p> <p><b>Describe whether the process is effective or not:</b> In general, the EHS management systems are effectively implemented and maintained in the F&amp;O Directorate. Evidence collected during this audit demonstrates that employees understand their ESH responsibilities and the potential impacts on the environment or risks to themselves or others if they do not conform to relevant requirements. The one NC finding in this area is a possible indicator of a systems "glitch" more than anything else.</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> F&amp;O has combined their OSH and EMS' - reflected in their documentation. F&amp;O Aspect Summary Sheets (Jan. 2008) - no changes to the summary sheets or aspects information. FOD employees participate in JRAs, work planning and pre-job briefings. Some FOD divisions (EP, PR) have established ESH Worker Committees with representation from all aspects of the division, while the smaller divisions gain employee involvement and input directly to Directorate management and the ESH Representatives in particular. FOD Employee Safety Concern system and toolbox meetings provide other avenues for employee communications on ESH issues. List</p>

	<p>of O&amp;Ts reviewed includes status updates as of 5/31/08 F&amp;O is currently involved in a complete reorganization - Security &amp; Emergency Services going to one group, Plant Engineering will be split up, as examples - the interviewing for the management team is done and announcements will be made soon on these positions and the reorganization. Transition will involve old structure managers working with new to get the organization stabilized. Impacts on EHS Management will involve realignment of procedures and redefining of some roles and responsibilities. Developed a safety plan for the whole directorate - involved about one-third of the staff. Process Review records - in process of review/updating - used to identify the pollution prevention opportunities and potential controls for those areas involving significant aspects. BNL Site Level JRA/FRA Guidance to Hazards and Controls (Rev. 1, 12/5/07) - used at F&amp;O when applicable. Work Permit Form (BNLF3093, 10/07 - updated as a result of revisions to the Work Planning/Control Subject Area) - the new form now has information that indicates the need for involvement of an Industrial Hygienist and that results in more detailed plans and controls. There has also been a revision to the instructions piece of the form to make them clearer, and providing greater emphasis on Worker Planned Work (as compared to Skill of the Craft language). More emphasis on training to relevant procedures is also included as a result of the revision to the Subject Area (applied to the Work Control Coordinators in particular). JRAs for "Replace Expansion Valves in High Bay Area Air Handlers", "Using Hand Tools" (recently revised due to an actual incident, resulting in additional controls to the work); "Street Valve Turning" - includes one hazard with a risk ranking of "Substantial" (score of 72) which requires a remedial action program (written) per the FRA/JRA Subject Area, however there is no program currently - instead there was a memo written to address this issue (NC); "Air Conditioning Package/Roof Unit Maintenance"; "Decontamination of Spills". F&amp;O Objectives/Targets for FY2008 - Major item is "reducing workplace injuries" looking to reduce recordable incidents by 90% by 2010 compared to FY07 baseline, resulted in development of a F&amp;O Safety Plan that describes how this will be accomplished. Greater emphasis on more open communications and disclosure of injury and near-miss type of information. Reviewed information that is posted/maintained online (BNL Intranet). 30% of supervisors' performance will be judged on the adherence/conformance/completion of the ESH requirements/activities - particularly the Safety initiatives. JRA-EM-STREETVALVE-02 (3/13/07) includes a risk ranking of 72 for the Vehicle Traffic hazard. Interviewees: F&amp;O ESHTQ Manager; F&amp;O ECR; Quality Coordinator; Asst. Mager-Operations &amp; Environment; Industrial Hygienist; Site Maintenance &amp; Custodial Services Superintendent; General Supervisor-Site Maintenance; Rigging Supervisor; HEMO Supervisor; HEMO Mechanic; Superintendent-Craft Maintenance &amp; Services; General Supervisor-Refrig/AC; Supervisors (2)-Refrig/AC, PM Coordinator</p>
<b>Life Sciences Directorate</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> Project funding/proposal approvals from Lab executives, DOE or others. Experimental Safety Reviews (ESRs), Work Permits, JRAs/FRAs, Process Assessment Forms</p> <p><b>Process objective(s):</b> Conduct of research projects within LSD in an environmentally sound manner, and in protection of worker and guest health and safety.</p> <p><b>Describe whether the process is effective or not:</b> The application of EHS requirements and policies was found to be effectively implemented in the Life Sciences Directorate.</p> <p><b>List the records verified, personnel interviewed, training, job relevance,</b></p>

	<p><b>policy, shift audited, etc...</b></p> <p>Biology and Medical Divisions - new ALD this year. Work done between 8 different buildings. Around 170 staff/researchers between these locations. Links to JRAs have been added into the ESRs that are found online. Work Planning and Control Subject Area is under review and will result in an extensive revision eventually. 13 Identified primary hazards for all LSD activities (cross-over with several environmental aspects as well). 12 Significant Aspects for all of the Directorate - Nanoparticles is the only addition from previous years. Other changes - no macaque monkeys in use, extremely limited agricultural operations, gold classified as Nano for ESH, gamma irradiator acquisition (still pending - for NASA projects), MRI ORPs in process (ESH Manager explained) - initiated in December 2007, reviewed ORPS reports (incident review, causal analysis, action plans, and ATS record #4013). Rev'd: Mark I Model 68A Irradiator Transfer to BNL from Cold Spring Harbor Lab - Contract #123767 (6/6/08) - this is primarily a plan to drive development of more specific plans (including several for EHS issues). FY08 Objectives/Targets - included in Self Assessment Planning as part of the Integrated Planning and Assessment activities. All are in alignment with the Lab O/Ts. Received funding for 2 P2 and 3 S2 projects. Reevaluate at least 50% of JRAs and incorporate them into the ESR process as an integrated element (reviewed draft ESR with the "new" approach - looked like a very good improvement - Physics is reportedly already using this approach). Closeout Tier 1 issues within 90 days. Apply for BLIP Air Permit (submitted in 12/07). Reduce legacy materials (identified as "unwanted materials or UMC at BNL). Complete non-UL approved equipment inventory. Review document control program relative to revised Subject Area, update as needed. Communications improvements - Sr. Manager work observations (Safety Observations) and Developing an Ideas Program. All O/Ts documented as Attachment 2 to the LSD FY08 Self-Assessment Plan (10/19/07). Every other week - review O/Ts progress in a committee meeting, and meet with the ALD quarterly to go over performance progress as well. Compliance Evaluation - Multi-Topic Assessments for Environmental scheduled for 4th quarter (not yet completed). For OSH - completion of Guidance Cards; reviewed records (all drafts currently) - LSD representatives plan to go over the report elements and findings with others to make sure they are all understood and valid. Rev'd: FY07 BNL Multi-Topic Self Assessment of Industrial Hygiene Programs (9/24/07) - Findings were recorded/tracked in Lab ATS. Rev'd: Presentation and Minutes for LSD Management Review meeting held 10/16/07. IH Manager also audited their MR meeting as part of the overall OHSAS 18001 internal audit (reviewed record). All inputs/outputs covered. Conducted observations/interviews of project/lab areas to verify implementation of requirements - ESR-BO Schwender1, ESR-BO-JS1, Med. Waste Storage Area, Radionuclides Group. Found good conformance to requirements, understanding of EHS principles/policies and their application in the lab areas/projects. Med Waste area under good controls, process explained by WMR. Observed: ESR review meeting of proposed ESR MO-Schlyer1 in the Radionuclide &amp; Radiopharmaceutical Research Group; Project: Combined PET/MRI Multimodality Imaging Probe, Phase 1-Incorporate a Radioisotope in Nanoparticles. Application, in part, of Interim Procedure 2006-001 Approach to Nanomaterial ESH (Rev. 3, 7/31/07). Piloting a possible new version of the ESR form that incorporates review of human performance factors and a more thorough evaluation of hazards and risks (very similar to current JRAs). Good process, good representation of technical and SMEs. Interviewees: ECR-LSD, OSH Rep-LSD, OSH/EMS Management Rep-LSD, ESH Manager-LSD, Assoc. BioChemist, Research Associate, Project Engr./Waste Mgmt. Rep., Group ESH Coord-Radionuclides</p>
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<b>Management Review</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> SA: Environmental Assessments &amp; ESH Management Review (5/16/07) OSH &amp; EMS MRs are not done concurrently or as a combined activity at this time.</p> <p><b>Process objective(s):</b> Ensure that the OSH &amp; EMS are effective, adequate and suitable from the executives' point of view.</p> <p><b>Describe whether the process is effective or not:</b> The Management Reviews for both the EMS and OSH MS have been completed and demonstrate effectiveness in those completions. Both groups provided appropriate and adequate inputs that provided ample information that BNL Management used for making decisions regarding systems improvements and changes. This is becoming a strong element of the two management systems.</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> ISO 14001 EMS Labwide Management Review (MR Planning Document) - used to identify the issues and topics to be included in the meeting. Sent to participants ahead of the meeting (at least one week before). The issues/proposed actions included can be used to develop objectives &amp; targets for the year. Includes information from the previous MR meeting (FY06). Presentation for EMS MR (12/11/07) - Aspects review (all nanomaterials work is considered use of hazardous materials and generation of hazardous wastes - also designated as significant aspect) - reflected in the Environmental Aspects/Impacts subject area. Several areas of concern identified relative to changing circumstances at the Lab. Each slide shows the issues of discussion and proposed action items to take away from the meeting. FY07 EMS Management Review Record of Decision (1/24/08) - Provides management's concurrence of the issues presented and action items decided upon during the MR meeting. Includes the meeting minutes as well. All of the MR information is included in ATS - File #4082 OSH MR Presentation (12/17/07) - Review of resource issues, overview of OSH MS (issue boxes on each slide). Hazard assessments - updated with addition of nanomaterials. Compliance assessment data - fed into new O&amp;Ts for this year. Review of leading and trailing indicators - Tier I inspections (leading), Safety Observations (leading), DART/TRC/Recordables - all were up in FY07 (lagging indicator - mostly STP issues). IH Baseline Monitoring started in FY07, currently in final year. Some of the data have already resulted in changes or additions to OSH controls. Data are also showing the need for additional staff in order to carry out DOE mandates relative to exposure issues. Illness/Injury Reduction Initiatives - reviewed for '07, discussed for '08. Review of changing circumstances included. Planned "initiatives" - proposed objectives/targets. Review of FY06 MR issues. Minutes and Record of Decisions - OSH MR (2/1/08) - Shows that all required inputs and outputs were addressed.</p>
<b>OSHMS General Review - Transition Issues, OSH Planning, Communications (Part 1)</b>	<p><b>Identify process inputs and describe their interactions with the process:</b> SA: Facility, Area and Job Risk Assessments (2/26/08); Standards Based Management System (SBMS - documentation management system); Subject Area (SA): OHSAS 18001 Program (2/26/08); BNL's OHSAS 18001 Program Scope (2/26/08) - includes a list of related procedural and other documentation (all hyperlinked); SA: Work Planning &amp; Control for Experiments and Operations (10/2/07); SA: OSH Communications, Participation &amp; Consultation (2/26/08)</p> <p><b>Process objective(s):</b> Ensure establishment and ongoing maintenance of an effective OSH MS for BNL.</p>

	<p><b>Describe whether the process is effective or not:</b> Evidence collected throughout the audit indicates that the EMS and OSH MS are effectively implemented throughout the Lab.</p> <p><b>List the records verified, personnel interviewed, training, job relevance, policy, shift audited, etc...</b> FRA and JRA forms; BNL Safety Observation Database (Status and "Flash" Reports included); ESH Monthly Summaries; S2 Proposals for FY08-Ranking &amp; Selection for Funding (5/28/08); PB Views</p> <p>Changes made to the OSHMS - Upgraded interim procedures to "final" status. Working to eliminate Program Descriptions for the OSH MS and they have eliminated the Management System Description as well - felt that they did not add value. No changes to the ESSH Policy as a result of the OHSAS 18001 revisions or for any other reasons. The forms used to complete the Risk Assessment Calculations has been included in the procedures as a 3-part approach, but it is not a required form only strongly encouraged for use. Human Performance Improvement process is incorporated into the Work Planning process in order to take into account human behaviour, capabilities and other human factors into the risk assessment activities. This is supported and monitored through the management walk-around reviews (noted as "Work Observations" in the Subject Area document, but commonly known as the Safety Observations) as specific areas for review and tracking. Rev'd database report for P. Williams. All managers must do these reviews, frequency established through individual manager's performance goals (typically a monthly activity). Trending the data to determine behavioural conditions on a year-over-year basis - unsafe versus others. This assessment is intended to be behaviour-focussed by design. These evaluations have been used to drive some change - gain commitment from the individuals to make specific changes. This was rolled out in early 2007, and is only now beginning to show data that are useable in planning and improving OSH activities at the Lab as well as the MS itself. Safety Observation data are used as input to Lab Management for decisions on safety and health measures lab-wide. Management of Changes relative to risks/hazards is addressed in the FRA/JRA Subject Area Section 5. Rev'd: FY2008 ESH Objectives &amp; Targets (August 2007) - this provides the Lab-level O&amp;Ts only. The line organizations take these and establish more specific targets as well as the OSH Management Programs (MPs) that are meant to help achieve the O&amp;Ts. Total of 7 O&amp;T areas identified with between 1 and 7 more specific O&amp;Ts for both Lab-wide and suggested for Directorate or Division/Department application. Many of the items were determined as a result of findings from the previous OHSAS audits, ISM Reviews and other activities of concern identified at the Lab; the hazards/risks, legal/other, business/financial/operational and technological options also were factored into the Management's decisions on which O&amp;Ts to approve (included in the Management Review meetings). Rev'd: Tracking data for determination of achievement of the O&amp;Ts at the Lab level. 6 S2 Projects approved for finding so far for this FY. Full Compliance O&amp;T - Identified particualal Subject Areas that needed revision and, once done, involves retraining of affected employees. Performance monitoring of the objectives are occurring, roll-up to Lab-level is done formally at least annually in preparation for the Management Review. In some other cases, there is some ongoing monitoring and "informal" reporting more frequently (quarterly) - but much of this information is NOT being communicated to Lab personnel (OFI). The Manager of Safety &amp; Healt Services Division is the appointed OSH Management Representative - this was done last year, and a reminder announcement was included in the June 2nd Monday Memo (reviewed). Interviewees: Manager-Safety &amp;</p>
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	Health Services Division (SHSD), Industrial Hygiene (IH) Manager
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<b>Audit Summary Matrix</b>	
<b>Standard Clause</b>	<b>Answer</b>
<b>4.1 - General Requirements</b>	Yes
<b>4.2 - OH&amp;S Policy</b>	Partial
<b>4.3 - Planning</b>	Yes
<b>4.3.1 - Planning for Hazard Identification, Risk Assessment and Risk Control (THIS MUST BE AUDITED EVERY VISIT)</b>	Yes
<b>4.3.2 - Legal and Other Requirements</b>	Yes
<b>4.3.3 - Objectives (THIS MUST BE AUDITED EVERY VISIT)</b>	Yes
<b>4.3.4 OH&amp;S Management Programs</b>	Yes
<b>4.4 - Implementation/Operation</b>	Partial
<b>4.4.1 Structure and Responsibility</b>	Partial
<b>4.4.2 - Training, Awareness &amp; Competence</b>	Partial
<b>4.4.3 - Consultation &amp; Communication (THIS MUST BE AUDITED EVERY VISIT)</b>	Yes
<b>4.4.4 - Documentation</b>	Partial
<b>4.4.5 - Documents and Data Control</b>	Partial
<b>4.4.6 - Operational Control</b>	Yes
<b>4.4.7 - Emergency Preparedness &amp; Response</b>	Yes
<b>4.5 Measuring and Monitoring (THIS MUST BE AUDITED EVERY VISIT)</b>	Yes
<b>4.5.1 Performance Measuring and Monitoring (THIS MUST BE AUDITED EVERY VISIT)</b>	Yes
<b>4.5.2 Accidents, Incidents, Nonconformances and Corrective and Preventive Actions</b>	Partial
<b>4.5.3 Records and Records Management</b>	No
<b>4.5.4 Audit</b>	Yes
<b>4.6 Management Review</b>	Yes